LOOKING AHEAD

As we did in the first issue, we would like to continually put forth suggestions for notes or ideas on some problems or specific interests of our readers. For instance, there have been requests for exchanging experiences with carnivorous plants in various controlled or atypical environments, such as under fluorescent lights in simple setups or environmental chambers.

Next issue, we will have a note on the carnivorous plants of the Illawarra area of New South Wales, by Brian Whitehead. We will do the note which is rather lengthy in its entirety rather than split it between two issues. We hope to have more notes and news from many of you.

Editorial deadline for the October issue of CPN (Vol. 1, No. 3) is 15 September 1972. Write!

RECENT LITERATURE

Boodley, James W.: Soiless mixes. Horticulture, Jan. 1972 pp 38-39
All of us use various components in our growing mixes which we tend to think of as "inert". In this article, the author mentions that vermiculite releases small amounts of potassium, calcium and magnesium. Perlite releases sodium and aluminum. While the quantities are apparently "small" and might not give a significant electrical conductance reading, we wonder if they might not be large enough for physiological effects.

Brower, John H. and Brower, A. E.: Notes on the biology and distribution of moths associated with the pitcher plant in Maine. Proc. Entomol. Soc. Ont. Vol 101 pp 79-83 (1970)
The distribution and habits of 3 species of moths that feed on S. purpurea shows that: E. rolandia feeds on the leaves, P. appassionata tunnels in the rhizome, and E. daeckeana utilizes the seed capsule. The complex interrelationships which have evolved between these insects and their host plants are discussed.

Dunsterville, G.C.K.: Zygosepalum tatei in Brazil. Orchid Digest Vol 35 pp 241-245 1971
Right on the boundary between Brazil and Venezuela at Cerro La Neblina (means mist), on the Brazil side of Rio Negro, at an 8,000 ft. elevation, the above orchid was found growing in very boggy soil along with a new species of Heliamphora. Pitchers were tall enough to tip water into the tops of the boots. Mid-October temperatures had night lows of 43° F. and daytime was 78° F. in the shade. A formal description of this plant and its new name will be published soon by Dr. Julian Steyermark.

Gouveia, A. P., Figueiredo, M. G., DaSilva, A. M., and De Gouveia, A.J.A.: Plumbagin and related compounds. Mem. Acad. Cienc. Lisb. Cl. Cienc. Vol 14 pp 303-325 1970
IN ITALIAN
Plumbagin, a naphthoquinone derivative, was isolated and analyzed. It could be extracted from Drosera intermedia and Plumbago zeylanica.

Harder, Richard: Effect of Daphnia decoction on five species of Utricularia. Beitr. Biol. Pflanz Vol 47 (1) pp 53-62 1970
IN GERMAN
When various concentrations of Daphnia were injected into the five species (U. minor, ochroleuca, exoleta, vulgaris, stellaris), the dry weight of the first three species increased. Flowering was promoted only in one species, U. exoleta. The Daphnia have less effect on growth and flowering than sugar and acetate solutions.

Jentsch, J.: Enzymes from carnivorous plants (Nepenthes). Isolation of the protease Nepenthacin. FEBS Letters Vol 21 (3) pp 273-276 1972
The author describes the extensive isolation and properties of nepenthacin from unopened, sterile pitchers of Nepenthes. This protease is analogous to the animal enzyme pepsin in that its maximum effect takes place at a pH of 2.9. The main difficulty in isolating the pure enzyme is the presence of high concentrations of carbohydrates and other materials in the pitcher fluid.

Komiya, S.: Systematic studies on the Lentibulariaceae. Publ. Department of Biology, Nippon Dental College. 149 pp 1972
This is a D. Sc. dissertation. Although the Lentibulariaceae has been well studied by P. Taylor and S. J. Casper recently, systematic citations for this family were still from the classical works of Kamienski or Barnhart. Komiya's work proposes a new systematic treatment for this family; e. g., Subfamilies, Pinguiculoideae, Genliseoideae, Utricularioideae. Relationships of glands between genera in the family are studied in this work. He also describes two species of Pinguicula and ten species of Utricularia from Japan as a review work. Since polymorphism in some species of Utricularia is very common and some morphological variations of vegetative structures of species can be correlated with differences in habitats, biosystematic studies could prove quite valuable in this area.

Kondo, K.: Chromosome number of Drosera burmanni Vahl from Borneo. Journ. Jap. Bot. Vol 45 (5) pp 159-160 1970
The chromosome number of a red flowered form of Drosera burmanni from Borneo was counted as 2n=20. This number was same as of normal white flowered individual reported by Venkatasubban (1950).

Kondo, K. and Whitehead, B.: Chromosome number of Drosera arcturi Hook. Journ. Jap. Bot. Vol 46 (11) p 344 1971
The chromosome number of Australian Drosera arcturi was reported as 2n=20. According to Diels (1906), this species is placed in Subgenus I. Rorella DC., Sect. I. Psychophilia Planch., but chromosome numbers recorded indicate this species might be related to species which are placed in Sect. VII. Rossolis.

Komiya, S.: Exotic species of the Lentibulariaceae in Japan. Journ. Jap. Bot. Vol 47 (3) pp 83-95 1972

Since 1913, many exotic species of the Lentibulariaceae have been introduced from overseas to Japan. Thus, twenty-five species of them were identified and recorded in this article. On page 84 in this article, Komiya identified and cited a name Pinguicula clivorum Standly et Steyermark for a Pinguicula from Oaxaca, Mexico. This must be wrong: Kondo suggests that this individual must be Pinguicula oblongiloba A. DC. This was arrived at when the record of the above individual and a specimen of P. oblongiloba (Kondo 01021; 01022) identified by Casper were compared with each other. Pinguicula clivorum is a doubtful species rejected by Casper (1966).

Kondo, K. and Whitehead, B.: The chromosome numbers of Utricularia dichotoma var. uniflora and U. lateriflora. Phyton Vol 29 (1/2) pp 95-97 1972

The chromosome numbers of Utricularia dichotoma Labill. var. uniflora (n=28) and U. lateriflora R. Br. (n=14) were reported for the first time. Morphological structures of U. dichotoma (diploid, which is reported in CIS 13) are always larger than those of U. dichotoma var. uniflora (tetraploid). Evidently this is a case of reduction of quantitative characters from the diploid species to the tetraploid species caused by chromosome doubling. A comparison of the chromosome numbers of U. lateriflora and U. dichotoma with that of U. dichotoma var. uniflora indicates that these two species might be closely related to each other.

Kondo, K.: Chromosome number of Utricularia subulata L. Journ. Jap. Bot. Vol 47 pp 31-32 1972

The basic chromosome number of Utricularia in the New World is n=9. U. Subulata has n=15 and U. gibba n=14 and both species are also found in Europe and Asia as well as the New World. This indicates that the Asiatic population of Utricularia may have many races with heteroploidy.

Kondo, Katsuhiko: A comparison of variability in Utricularia cornuta and Utricularia juncea. Am. J. Bot Vol 59 (1) pp 23-37 1972

Various authors have considered these two plants conspecific in the past. The author shows that while both have the same chromosome number, and even though they are sympatric, that they are separate species. Reproductive isolation is present and is strongly seasonal. There are also floral and other consistent differences discussed in this thorough, well worked up paper.

Kress, A.: Cytotaxinomic studies on some insectivorous plants. Ber. Dtsch. Bot. Ges. 83 (2) pp 55-62 1970

IN GERMAN

The author has determined the chromosome number of seven more species of insectivorous plants. Byblis gigantea 2n=18, Drosera madagascariensis 2n=40, D. whittakeri 2n=28, Heliamphora nutans 2n=42 and Roridula gorgonias 2n=12. See News and Views in this issue for a comment on these results.

Roberts, Marvin L.: Wolffia in the bladders of Utricularia: an "herbivorous" plant? Mich. Bot. 11 pp 67-69 1972

While exploring and collecting along ponded bays on Lake Erie the author noted that many bladders of U. vulgaris contained ingested Wolffias (duckweeds). Digestion did not occur in those plants taken to the laboratory for observation; rather, some of the victims apparently proliferated within the traps. The ingestion was suggested as fortuitous, during nonspecific disturbances by waves, wind. etc.

Shibata, C. and Komiya, S.: Increase of nitrogen contents in the leaf of Drosera rotundifolia fed by protein. Bulletin of Nippon Dental College, General Education Vol 1 pp 55-75 1972 (IN JAPANESE, SUMMARY IN ENGLISH)

Absorption of peptides in the leaf of Drosera rotundifolia was observed quantitatively, using nitrogen measurement. All the results of measurement show some increase of the nitrogen contents in the leaf after feeding. In every case, the majority of nitrogen absorbed into the leaf is transferred soon to the other parts of the plant, and therefore, accumulation of nitrogen in the leaf does not exceed about 10% increase. Change of nitrogen content in the leaves fed by protein over 1 to 24 hours was investigated. After a large amount of nitrogen is absorbed into the leaf within 1 to 3 hours, the nitrogen contents reduce rapidly. Transference of decomposed peptone to the other parts of the plants is extremely slow in contrast with the absorption of it, and therefore, a high residual quantity is observed. The quickest transference is observed with egg albumin.

Subramanyam, K. and Kamble, N. P.: Chromosome numbers in certain Indian species of Utricularia 1. (Lentibulariaceae). Proceedings of the Indian Academy of Sciences 68 (Section B) (5) pp 221-224 1968

Chromosome numbers from meiotic studies have been reported for the following species of Utricularia: U. aurea Lour. (n=21); U. baouleensis A. Chev. (n=10); U. caerulea L. (n=20); U. inflexa var. stellaris (Linn. f.) P. Taylor (n=21); U. minutissima Vahl (n=8); U. scandens Benj. (n=6, 7); and U. stricticaulis Stapf (n=7). There are two cyto-races in U. scandens. This result indicates that the Asiatic Utricularia may have many races with heteroploidy.

Swales, D. E.: Sarracenia purpurea L. as host and carnivore at Lac Carré, Terrebonne Co., Quebec. Part II. Naturaliste Can. Vol 99 pp 41-47 1972

Rotifers, nematodes and copepods are added to the previously recorded list of inquilines in Sarracenia purpurea. About one-third of the larvae of Metriocnemus knabi Coq. and Wyeomiya smithii (Coq.) were killed by winter conditions, and no Blaesoxipha fletcheri (Ald.) survived that season. The most numerous mite, Anoetus gibsoni (Nesbitt), over-wintered in the hypopal stage. Two roundworm parasites of grasshoppers were found in a late summer collection and nine insect families are added to the previous list of victims. Two species of Blaesoxipha seemed to be important agents of pollination of the host plant.

Williams, Stephan E., Pickard, Barbara G.: Receptor potentials and action potentials in Drosera tentacles. Planta (Berl.) 103 pp 193-221 1972

Stimulation of the heads of Drosera intermedia by inert, chemical or living objects results in a low receptor potential followed by action potential, the frequency of the latter varying with the strength of the former. There is variation of amplitude of action potentials and this may be due to variation of resistance in receptor membranes.

Williams, S. E., and Pickard, B. G.: Properties of action potentials in Drosera tentacles. Planta Vol 103 pp 222-240 1972

Action potentials of Drosera tentacles resemble those of vertebrate peripheral nerves in that they appear to be comprised of relatively uniform spikes, variable shoulders or negative after-potentials, and variable positive after-potentials. The peaking of the spike corresponds to a period of great refractoriness, while action potentials of low amplitude may be fired readily during the negative after-potential. The action potentials fired during the negative after-potential appear to be unlike those of peripheral nerves in that they are of abnormally brief duration. Also apparently different from the case in peripheral nerves is the dependence of the duration of an action potential on the interval separating it from the preceding action potential. Action potentials propagate from the neck of the stalk to its base at about 5 mm s^{-1} at room temperature. Propagation may be reversed artificially, consistent with the possibility that the neuroid cells are electrically coupled.